Background Patients who are offered the treatment option of stem cell transplantation (SCT) are in an extremely vulnerable position due to the risks related to their disease and its treatment (Serna et al., 2003). The treatment related risks (infection, GVHD, organ toxicity) could be life threatening or have high morbidity. Patient understanding of the risks and uncertain outcomes before the treatment begins is not confirmed by the limited research or evidence available. Distressingly little is known about the experience of patients from ethnically diverse backgrounds who undergo SCT. Purpose The purpose of this pilot study is to describe the experience of African-American, Latino and Caucasian SCT patient before, during and after stem cell transplantation in order to examine their expression of uncertainty and risk acknowledgment. Theoretical Framework Uncertainty, a mid-range nursing theory and framework for this study, is defined as the inability to determine the meaning of illness-related events, occurring when the decision maker is unable to assign definite value to objects or events, or is unable to predict outcomes accurately (Mishel, 1988). The nature of the disease of cancer and SCT treatment with unpredictable outcomes makes this concept especially relevant. Methods/Analysis Nine (three from each ethnic group) patients' previously conducted interviews were analyzed using hermeneutic phenomenological design to discover the informants' expression of their experiences. Uncertainty and risk perception at 5 time points (pre-treatment to day 100) during SCT treatment was examined. The purpose of hermeneutics is to clarify the meaning of unfamiliar experiences and to explain human phenomena. Hermeneutic methodology suggests meaning and significance have individual interpretation based on personal variables and cultural influence. The goal of this analytical process will be the development of a rich description of the participant's experience before, during, and after the treatment with SCT. Findings The findings will present data in a manner that reflects the meaning of the texts, the cultural context, and describes the essence of the participants' experiences thereby assisting healthcare providers understand this treatment from the patient's perspective. This understanding influences the development of patient education material and supportive measures to assist future SCT patients.

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Chlorhexidine Gluconate Impregnated Waterless Bath System for the Reduction of Blood Stream Infections in the BMT Population

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Objectives: The primary objective was to determine whether blood and marrow transplant (BMT) patients bathed daily with chlorhexidine gluconate (CHG) waterless bath system have lower incidence of skin flora associated (i.e. *Staphylococcus epidermis, Staphylococcus aureus*) central line associated blood stream infections (CLABSI) and total CLABSIs compared to patients bathed with the standard CHG soap and water method.

Background: Patients undergoing BMT are immunocompromised hosts whose leading cause of death during the transplant process is infection. Multiple studies have presented solid evidence that hospital water systems and bath basins are the source of serious waterborne nosocomial infection and exposure comes from showering and bathing. A number of studies in the medical intensive care units have shown a significant reduction in hospital acquired CLABSIs after implementing the use of CHG waterless bath system.

Methods: This project was an innovative, evidence based intervention to decrease CLABSI rates (5.2/1000 catheter days) through the use of a CHG impregnated waterless bath system for daily hygiene. It included (N=281; 3451 catheter days) historical controls who showered using CHG soap and water bathing during their admission for BMT versus (N=290; 3838 catheter days) patients bathed with CHG waterless bath system. Data for both groups was extracted from a BMT program database. Outcome measures included incidence of total CLABSI and skin flora associated CLABSI.

Results: BMT patients bathed with CHG waterless bath intervention had significantly fewer CLABSI associated with skin flora (*Staphylococcus epidermis* & *Staphylococcus aureus*) ($P < .05$). Overall CLABSI rate were reduced from 5.2/1000 catheter days to 4.1/1000 catheter days which did not reach statistical significant but showed an important downward trend.

Conclusions: Daily bathing of patients with CHG waterless bath system significantly decreased CLABSI, associated with skin flora. It is an easy, time-efficient, cost-effective intervention to decrease these infections in patients undergoing a BMT.

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Investigation of Community Respiratory Viruses in Hematopoietic Stem Cell Transplant Patients and Household Member Characteristics

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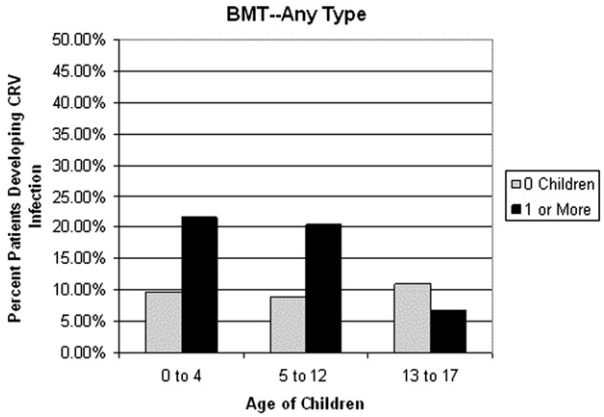
Background: Community-acquired respiratory virus (CRV) infections are a threat to hematopoietic stem cell transplant (HSCT) outpatients. High mortality rates have been associated with CRV pneumonia. CRV is also responsible for unscheduled re-admissions, lengthy treatments, and increased medical costs. Graft versus host disease, immune status, and conditioning regimens were not associated with the development of CRV by the HSCT patient in previous studies. In investigations of non-HSCT households, the presence of CRV infections and their spread were correlated with the presence of secondary family members. Therefore, the objectives of this study were to determine if children or the number of contacts living in the immediate household increase the risk of CRV acquisition in HSCT outpatients.

Methods: A descriptive correlational design with a retrospective medical record review of adult outpatients who received a HSCT between July1, 2006 and December 31, 2009 was performed. Respiratory viral cultures were followed for 24 months after date of transplant. Age of children <18 years and number of household members were obtained from the pre-transplant assessment. Summary statistics were used to describe sample characteristics. Binary logistic regression was used to determine whether the number of household member contacts or the number of children in each of three age groups was a significant predictor of CRV. Multivariate linear regression was used to investigate predictors of the number of CRV infections.

Results: The sample (N= 720) had a mean age (SD) of 51.8 (12.4); 54% were in the allogeneic (allo) group, 44% in the

autologous (auto) group, and other HSCT groups were 2%. Across all patients, children ages 0-4 years ($P = .01$) and 5-12 years ($P = .001$) predicted CRV infection. The allo group had the greatest incidence of CRV infection (16%), and were most sensitive to the presence of young children. Total number of household members was not a predictor of CRV. The mean number of days to CRV infection for all groups was 283 days post-transplant.

Conclusions: Households with children in the age groups of 0-4 and 5-12 more than doubled the risk of an HSCT patient acquiring a CRV infection. Further studies are needed to test interventions designed to interrupt household transmission of CRV from children to the vulnerable HSCT patient. Household contacts, especially children, should be included in transplant teaching. As indicated by the potentially high number of days between transplant and CRV infection, re-education and continuing focus on CRV prevention should be reinforced throughout the post-transplant period.



*0-4 year age group $P = .01$
**5-12 year age group $P = .001$

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Loneliness in Transplant Caregivers: Exploration of Related Factors

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Serving as a caregiver for someone undergoing intense cancer treatments, such as allogeneic transplantation, has benefits but also carries unavoidable psychological and emotional effects, which may include loneliness. Loneliness is defined as feeling isolated or alone when one desires connections with others. Cross-sectional data were drawn from hematopoietic stem cell transplant (HSCT) caregivers (CG) (n=21) and matched (age, gender, race/ethnicity) non-caregiver controls (MC) (n=20) to examine their level of loneliness and related factors.

Methods: Adult HSCT CGs literate in English/Spanish, pre-HSCT, completed the Health Promoting Lifestyle Profile-II, General Self Efficacy scale, PROMIS short forms and UCLA Loneliness scale.

Results: CGs were primarily female (66.7%), 50.8 years old (+ 11.9) and spouse of the HSCT recipient (52.4%). Thirteen (61.9%) were sole CGs while 38.1% were members of a CG 'network'. Adult patients were preparing for a reduced intensity (61.9%), peripheral blood (95.2%) related donor (85.7%) HSCT for lymphoma (28.6%) or leukemia (33.3%). CG loneliness scores were significantly higher ($p=0.022$) than MCs (20.86 + 5.7 vs. 17.0 + 4.6), with male CGs significantly higher than male MCs. Sole male CGs who were spouses reported highest loneliness scores. Loneliness was significantly related ($P < .05$) to interpersonal relations, spiritual growth and self-efficacy, suggesting CGs with well-established relationships, spiritual connections and confidence in their caregiving abilities were less lonely.

Conclusion: Confidence as a CG is critical for HSCT patient recovery but also CG well-being. Assessing loneliness in HSCT CGs may be of value especially in groups at risk for loneliness. Future research should explore interventions that modify health behaviors such as developing relationships and enhancing self-efficacy in CGs and HSCT recipients.

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POSTER SESSION 2: TRANSPLANT PHARMACY

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Intravenous Busulfan Pharmacokinetics in Conditioning Regimens for Allogeneic Hematopoietic Stem Cell Transplantation: Impact of Dosing Weight

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Introduction: The area-under-the curve (AUC) for busulfan has been linked to clinical outcomes such as veno-occlusive disease (VOD) and cancer relapse. The choice of body weight (actual versus adjusted weight) to calculate the dose of busulfan may be critical in attaining goal AUC based on pharmacokinetic (PK) analysis, especially for overweight patients.

Objective: Determine a correlation between weight chosen for dosing of busulfan and outcomes.

Methods: An IRB-approved retrospective analysis was performed on hematopoietic stem cell transplant (HSCT) recipients who had received either Q6H IV busulfan with cyclophosphamide (Bu/Cy) or once-daily IV busulfan with fludarabine (Flu/Bu) as conditioning regimens. All patients underwent prospective monitoring of serum PKs at a specialized therapeutic drug monitoring central laboratory. Data was analyzed using Systat ver 13.

Results: Of the 31 patients with evaluable PK results, mean age was 53 years; 48% were male; 77% were Caucasian and 58% had AML/MDS. GVHD prophylaxis consisted of tacrolimus/methotrexate in 58% and tacrolimus/mini-methotrexate in 42% of patients; 35% of the patients also received anti-thymocyte globulin. With regards to conditioning regimen, 58% received Flu/Bu (50% dosed on actual weight, 50% dosed on adjusted) and 42% received Bu/Cy (23% = actual weight, 77% = adjusted). Only two patients did not require a dose adjustment based on AUC results. Overall,